

Name:	<i>Fire Protection Systems</i>
Course Description:	This course provides information relating to the features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection and portable fire extinguishers.
Prerequisite:	Demonstration of a competency in high school level algebra or the equivalent. Completion of <i>Principles of Emergency Services</i> or instructor approval.
Outcomes:	<ol style="list-style-type: none"> 1. Articulate knowledge of distribution and installation of water supply systems in suburban and rural areas. 2. Comprehend types, components, and operation of automatic, special sprinkler systems, and standpipes. 3. Classify detection, alarm, supervisory devices, heat, flame, smoke control devices and hardware. 4. Identify and describe appropriate national standards governing the installation, inspection, and maintenance of given extinguishing agent/systems and their related components.
Suggested Student Texts:	<i>Fire Suppression and Detection Systems</i> ; John Bryan, MacMillan Publishing <i>Private Fire Protection and Detection</i> ; IFSTA <i>Design of Special Hazard and Fire Alarm System</i> ; Robert Gagnon, Delmar <i>Design of Water Based Fire Protection Systems</i> ; Robert Gagnon, Delmar <i>Automatic Sprinkler and Standpipe Systems</i> ; John L. Bryan, NFPA <i>Fire Protection Handbook</i> NFPA
Supporting References/Research for Faculty and Students:	U. S. Fire Administration <u>Publications</u> : http://www.usfa.fema.gov/applications/publications/pubs_main.cfm See Fire Protection, Fire Service Operations <u>Applied Research</u> : http://www.usfa.fema.gov/dhtml/inside-usfa/research.cfm <u>Research Reports</u> : http://www.usfa.fema.gov/dhtml/inside-usfa/r_reports.cfm <u>Technical Reports</u> : http://www.usfa.fema.gov/applications/publications/techreps.cfm <u>Topical Fire Research Series</u> : http://www.usfa.fema.gov/dhtml/inside-usfa/tfrs.cfm <u>Learning Resource Center</u> : http://www.usfa.fema.gov/dhtml/inside-usfa/lrc.cfm National Institute for Standards and Technology http://www.fire.nist.gov : Fire Tests/Data, Software/Models, Publications, FIREDOC (under Publications)

Supporting References/Research for Faculty and Students:	References http://www.homefiresprinkler.org/ Society of Fire Protection Engineers: http://www.pentoncmg.com/sfpe/index.html Current Events/News http://www.firehouse.com/ http://www.fireengineering.com/ http://www.withthecommand.com/
Assessment:	Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.
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Course Outline

Fire Protection Systems

- I. History of fire detection and suppression systems
- II. Fire Detection Systems
 - A. Flame, smoke, and thermal detection systems
 - B. NFPA standards
 - 1. Design
 - 2. Installation
 - 3. Maintenance
- III. Alarm systems and their components
 - A. Types of fire alarm signaling systems
 - B. Heat and smoke control systems
- IV. Alarm Monitoring and Communications
- V. Portable fire extinguishing equipment
 - A. NFPA standards
 - 1. Types
 - 2. Selection
 - 3. Placement
 - 4. Installation
 - 5. Maintenance
 - B. Portable fire extinguisher operations
- VI. Fire Suppression Systems
 - A. Identify fire flow requirements and system design
- VII. Water-based suppression systems
 - A. Piping and distribution systems
 - B. Water supplies
 - C. Sprinklers
 - D. Standpipes
 - E. Foam systems
 - F. Residential sprinkler systems
 - G. Fire department support of sprinkler operations

VIII. Nonwater-based suppression system

- A. Carbon dioxide
 - B. Halogenated agents
 - C. Inert gases
 - D. Dry chemical agents
 - E. Combustible metal agents
 - F. Explosion suppression systems
 - G. NFPA standards
- 1. Design
 - 2. Installation
 - 3. Maintenance